

REMARKS

Claims 1-18, 20-22 and 24-26 are pending in the application.

Claims 1-18, 20-22 and 24-26 are rejected.

Claims 1, 3 and 12 are rejected under 35 U.S.C. 103(a).

Claims 2, 5 and 6 are rejected under 35 U.S.C. 103(a).

Claim 4 is rejected under 35 U.S.C. 103(a).

Claims 7 and 13 are rejected under 35 U.S.C. 103(a).

Claims 8 and 9 are rejected under 35 U.S.C. 103(a).

Claim 11 is rejected under 35 U.S.C. 103(a).

Claim 15, 18, 22 and 26 are rejected under 35 U.S.C. 103(a).

Claim 16 is rejected under 35 U.S.C. 103(a).

Claim 17 is rejected under 35 U.S.C. 103(a).

Claims 20, 21 and 25 are rejected under 35 U.S.C. 103(a).

Claim 24 is rejected under 35 U.S.C. 103(a).

Claims 1, 3-4, 7-15 and 22 are amended to further clarify the patentable subject matter of the claimed invention. Although the term “a CVD material layer” in the claims have been replaced with, for example, “a CVD oxide layer,” because claim 3 already recites limitations such as a silicon oxide, an aluminum oxide, a zirconium oxide, and a tantalum oxide, this amendment would not require a new search.

No new matter is added.

Claims 1-18, 20-22 and 24-26 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in the light of the above amendment and following remarks.

Claim Rejection – 35 USC § 103

Claims 1, 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,174,785 to Parekh et al. in view of US Patent No. 6,231,673 to Maeda.

Claims 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parekh et al. in view of Maeda, and further in view of US Patent No. 4,804,633 to Macelwee et al.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parekh et al. in view of Maeda, and further in view of US Patent No. 5,994,201 to Lee.

Claims 7 and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Parekh et al. in view of Maeda, and further in view of US Patent No. 6,150,235 to Doong et al.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parekh et al. in view of Maeda, and further in view of US Patent No. 5,923,998 to Liu.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parekh et al., Maeda, Liu US Patent No. 6,180,493 to Chu in view of US Patent No. 6,140,208 to Agahi et al., and further in view of US Patent No. 5,665,633 to Mayer.

Claims 15, 18, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,140,208 to Agahi et al. in view of US Patent No. 6,231,673 to Maeda.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. in view of Maeda, and further in view of US Patent No. 4,804,633 to Macelwee et al.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. in view of Maeda, and further in view of US Patent No. 6,174,785 to Parekh et al.

Claims 20, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agahi et al. and Maeda in view of US Patent No. 4,804,633 to Macelwee et al., and further in view of US Patent No. 6,150,235 to Doong et al.

Claim 24 is rejected under 35 U.S.C. 103(a) as being upatentable over Agahi et al. and Maeda in view of Macelwee et al., and further in view of US Patent No. 6,174,785 to Parekh et al.

Applicant respectfully traverses the rejections.

Claim 1 is amended to recite, “forming a CVD *oxide* layer having a third thickness substantially equal to a difference between the first thickness and the second thickness *directly* on the thermal oxide layer in the same CVD apparatus.”

In contrast, in Parekh, an oxide layer 16 is either formed 1) directly over substrate 10 or 2) over optional nitride layer 14 and pad oxide layer 12. See col. 4, lines 29-50 of the Parekh. Thus, Parekh does not teach or suggest, “forming a CVD oxide layer ...*directly* on the thermal oxide layer in the same CVD apparatus,” as recited in amended claim 1 of the present application.

In other words, the claimed invention discloses a double layer structure of “the thermal oxide and the CVD oxide” that are formed in the same CVD apparatus.

On the contrary, Parakeh discloses forming a triple-layer etching mask pattern that is formed of an oxide, nitride and oxide layer, which are sequentially stacked.

Thus, Parakeh does not teach or disclose a double layer structure of “the thermal oxide and the CVD oxide that are formed in the same CVD apparatus,” as recited in claim 1.

For these reasons, the cited references, either alone or in combination, do not teach or suggest all of the limitations of claim 1. Accordingly, the rejection does not present a *prima facie* case of obviousness. Therefore, claim 1 is allowable and claims 2-11, which depend therefrom and recite features that are neither taught nor disclosed in the cited references, are also allowable.

For the reasons discussed above, claim 12, which recite limitations similar to claim 1, is allowable and claims 13-14, which depend therefrom, are also allowable.

With respect to claim 15, it is amended to recite, “forming the oxide layer comprises:

forming a thermal oxide layer having a second thickness on the trench;
forming a CVD conformal liner material layer having a third thickness substantially equal to a difference between the first thickness and the second thickness *directly* on the oxide layer...”

In contrast, in Agahi, once the thermal oxide 23 is grown, an insulating oxide layer is formed using *sputter deposition* techniques. Thus, Agahi does not teach or suggest, “forming a CVD conformal liner material layer having a third thickness substantially equal to a difference between the first thickness and the second thickness *directly* on the oxide layer,” as recited in amended claim 15.

Thus, for this reason and the reasons discussed above with respect to claim 1, the cited references, either alone or in combination, do not teach or suggest all of the limitations of claim 15. Accordingly, the rejection does not present a *prima facie* case of obviousness. Therefore, claim 15 is allowable and claims 16-18 and 20-21, which depend therefrom and recite features that are neither taught nor disclosed in the cited references, are also allowable.

With respect to claim 22, which recites limitations similar to claim 15, it is also allowable for the reasons discussed above. In addition, claims 24-26 are allowable for their dependency and their own merits.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-18, 20-22 and 24-26 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Customer No. 20575

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.

A handwritten signature in black ink, appearing to read 'A. T. McCollom', written over a horizontal line.

Alan T. McCollom
Reg. No. 28,881

MARGER JOHNSON & McCOLLOM, P.C.
1030 SW Morrison Street
Portland, OR 97205
503-222-3613